

REMARKS

Applicant appreciates the detailed examination evidenced by the Office Action mailed October 9, 2007 (hereinafter "Office Action"). In response thereto, Applicant respectfully requests entry of the amendments in which Claim 11 is canceled. Claims 1-5, 10, and 28-30 are presently pending in the application. Applicant respectfully submits that all claims are in condition for allowance for at least the reasons stated below.

Drawing objections are overcome

The Office Action objects to the drawing under 37 C.F.R. §1.83(a) as not showing every feature of the invention specified in the claims. Specifically, the Office Action indicates that the limitations of Claim 11 are not shown in the drawings. Office Action, page 2. Applicant respectfully submits that Claim 11 is canceled herein and thus the objection to the drawings is overcome.

35 U.S.C. §112, second paragraph rejection

The Office Action rejects Claim 11 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Office Action, page 3. Applicant respectfully submits that Claim 11 is canceled and therefore the rejection is moot.

Claim 1 is patentable over Koga and Igarashi

The Office Action states that Claims 1-3, 5 and 28-30 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,649,500 to Koga et al. ("Koga") in view of U.S. Patent No. 6,838,732 to Igarashi et al. ("Igarashi"). Office Action, page 4. Applicant respectfully traverses the rejection on the basis that Koga and Igarashi, alone or in combination, do not disclose or suggest all of the recitations of Claim 1. For example, Claim 1 recites:

An integrated circuit device comprising:
a conductive contact in a hole in an interlevel dielectric layer;
a first spacer having a first dielectric constant on a side wall of the
hole;

a second spacer having a second dielectric constant located between the first spacer and the side wall of the hole, wherein the first dielectric constant is less than the second dielectric constant; and

a contact pad in a substrate, wherein the conductive contact contacts the contact pad, ***wherein the first spacer extends along the side wall to contact the contact pad and wherein the second spacer does not contact the contact pad.***

(*Emphasis added.*) In rejecting Claim 1, the Office Action states that:

Koga teaches in figure 10(d) first spacer 207 having a first dielectric constant in a hole in an interlevel dielectric layer...

Koga does not explicitly teach a contact pad connected to the conductive contact. Nonetheless, Igarashi teaches in figure 16, wherein a silicide contact pad 105 is positioned to make an ohmic contact with a diffusion layer 104 underneath. At the time of the invention, it would have been obvious...to modify Koga by using a silicide contact pad as taught by Igarashi in the interest of an ohmic contact with the diffusion layer 208 underneath...Moreover, ***Igarashi's contact pad 115 covers the entirety of the surface underneath the conductive contact 106, therefore, once used in Koga's device, Koga's first spacer will extend to contact the silicide contact pad,*** and Koga's second spacer will not contact the silicide contact pad.

(*Emphasis added.*)

Office Action, page 4. In response, Applicant respectfully traverses the rejection as even if these references were combined, the combination would not disclose or suggest "a contact pad in a substrate, wherein the conductive contact contacts the contact pad, wherein the first spacer extends along the side wall to contact the contact pad and wherein the second spacer does not contact the contact pad." Even if, as the Office Action alleges, a silicide contact pad were used in Koga's device, a contact pad that covers the entire surface underneath the conductive contact 106 would not include a first spacer that would "contact the contact pad and wherein the second spacer does not contact the contact pad," as recited in Claim 1. Moreover, there is no suggestion or motivation to modify Koga by including a contact pad described in Igarashi. For example, there would be no motivation to provide a contact pad between the source and drain regions 208 and the electrode 213a in the context of an insulated field effect transistor described in Koga. Accordingly, Claim 1 is patentable over Koga and Igarashi for at least these reasons.

Claim 10 is patentable over Koga, Igarashi and Yokoyama

The Office Action states that Claim 10 is rejected under 35 U.S.C. §103(a) as being unpatentable over Koga in view of Igarashi and in further view of U.S. Patent No. 6,703,715 to Yokoyama ("Yokoyama"). Office Action, page 6. Applicant respectfully traverses the rejection on the basis that Koga, Igarashi and Yokoyama, alone or in combination, do not disclose or suggest all of the recitations of Claim 10. For example, Claim 10 recites:

An integrated circuit device comprising:
an integrated circuit substrate in which source/drain regions are formed;
a first interlevel dielectric layer which is formed on the integrated circuit substrate;
gate line patterns which are formed in the first interlevel dielectric layer;
contact pads which are present between adjacent gate line patterns in the first interlevel dielectric layer and electrically connected to the source/drain regions;
a second interlevel dielectric layer which is formed on the first interlevel dielectric layer, wherein contact holes, through which the contact pads are exposed, are formed in the second interlevel dielectric layer;
first contact spacers which are formed along the side walls of the contact holes, the first contact spacers being formed of silicon oxide;
second contact spacers which are formed of silicon nitride and formed on the first contact spacers; and
contact plugs which are present in the contact holes between the second contact spacers.

(*Emphasis added.*) As a general matter, a structure according to the recitations of Claim 10 is so distinctive from Koga, Igarashi and Yokoyama, alone or in combination, that selecting various elements therefrom without limitation, motivation or suggestion still fails to disclose or suggest the recitations of Claim 10.

In rejecting Claim 10, the Office Action states, in part, that Koga teaches "gate line patterns 203 which are formed in the first interlevel dielectric layer." Office Action, page 7. Applicant respectfully submits that, in contrast with gate line patterns, as recited in Claim 10, Koga appears to describe a gate electrode 200 formed of a "cap film 205, WSi film 204, and polysilicon film 203." Koga, column 1, lines 36-38. Thus, in contrast with the Office Action allegation, Koga does not disclose or suggest "gate line patterns which are formed in the first interlevel dielectric layer," as recited in Claim 10.

Moreover, the Office Action appears to disregard certain recitations of Claim 10 in a broad statement of rejection. For example, Claim 10 recites that "contact pads which are present between adjacent gate line patterns in the first interlevel dielectric layer and electrically connected to the source/drain regions." The Office Action appears to rely on Igarashi as teaching the contact pads. Applicant respectfully submits that even if one would be motivated to modify Koga using the silicide film 105 of Igarashi, the resulting contact pads would not be "present between adjacent gate line patterns in the first interlevel dielectric layer," as recited in Claim 10. Thus, for at least these reasons, Koga, Igarashi and Yokoyama, alone or in combination, do not disclose or suggest several of the recitations of Claim 10. Accordingly, Claim 10 is patentable over Koga, Igarashi and Yokoyama for at least these reasons.

Dependent claims are patentable

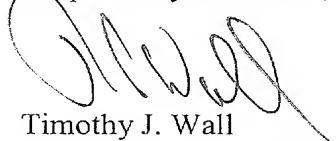
Applicant respectfully submits that dependent Claims 2-5, and 28-30 are patentable at least per the patentability of the independent claims from which they depend.

In re: Beom-jun Jin
Serial No.: 10/689,981
Filed: October 20, 2003
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CONCLUSION

As all of the claims are now in condition for allowance, Applicants respectfully request allowance of the claims and passing of the application to issue in due course. Applicants urge the Examiner to contact Applicants' undersigned representative at (919) 854-1400 to resolve any remaining formal issues.

Respectfully submitted,



Timothy J. Wall
Registration No. 50,743

USPTO Customer No. 20792
Myers Bigel Sibley & Sajovec
Post Office Box 37428
Raleigh, North Carolina 27627
Telephone: 919/854-1400
Facsimile: 919/854-1401

CERTIFICATION OF TRANSMISSION

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Candi L. Riggs